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TEXTUAL REVISION: A REVIEW OF THE RESEARCH

Larry A. Gentry

ABSTRACT

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TEXTUAL REVISION: A REVIEW OF THE RESEARCH

Larry A. Gentry

> Today's research in composition, taken as a whole, may be compared to chemical research as it emerged from the period of alchemy: . . . the field as whole is laced with dreams, prejudices, and make-shift operations (Braddock, Lloyd-Jones, and Schoer, 1963, p. 5).
>
> Alchemy is . . . an apt metaphor to characterize the current state of our knowledge about how children--indeed, persons of all ages--compose (Emig, 1971, p. 5).

On the surface, these two statements appear to be applying the same metaphor to a single concern. They are, it is true, both concerned with written composition. The authors of the first statement, however, writing from the framework of the early 1960's, were dismayed that 60 years of research had produced little of value to "the teaching of composition." Emig, on the other hand, was chastising earlier researchers for trying to improve writing instruction without first examining the nature of the thing that they were trying to improve--the writing process.

Even more recently, Sommers has said, ". . . researchers have blurred the important distinction between the teaching of writing and learning how to write; we do not yet understand how effective writers write outside of classroom situations or what sound writing techniques are, and yet we are inundated with research on divergent methods of teaching composition" (1979, p. 2).

The fact that research has emphasized composition as a product to be taught, rather than a process to be learned, has been documented by a number of researchers in recent years (Emig, 1971; Graves, 1974; Sommers, 1979). Further confirmation of the traditional emphasis on methodology is found in Braddock, Lloyd-Jones, and Schoer's (1963) listing of 504 composition studies undertaken between 1902 and 1962. A perusal of their bibliography indicates that only one study (Van Bruggen, 1946) can confidently be labeled as a study of writing behavior.

Curiously, it was another study on methodology that provided the impetus for contemporary scholars to reevaluate their positions regarding composition research. Rohman's (1965) article, "Pre-Writing: The Stage of Discovery in the Writing Process," was directed toward the development of "thinking" and "discovery" skills in preparation for writing. In an almost serendipitous fashion, however, he laid the groundwork for two important concepts in contemporary writing research. Rohman opened his article with these words:

> Writing is usefully described as a process, something which shows continuous change in time like growth in organic nature. Different things happen at different stages in the process of putting thoughts into words and words onto paper (p. 106).

He went on to delineate (for pedagogical purposes) the existence of three stages in the composing process: "Pre-Writing," "Writing," and "Re-Writing."[1] These two concepts, (1) writing as a process, and (2) writing

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[1]Buxton (1958) used the phrase "Pre-vision, Writing, and Revision" as a label for one of the experimental groups in his dissertation study, but Rohman does not indicate that he was aware of this earlier application.

as a series of stages, formed the theoretical base for the process-oriented research that began to take shape in the late 1960's.

The first major effort in this new area of inquiry was Janet Emig's (1971) study of the composing processes of high school seniors. Her case-study approach was immediately recognized as a methodological model that fits many concepts and thus served as the point of departure for a proliferation of writing-process studies (Graves, 1974, 1979; Mischel, 1974; Stallard, 1974; Britton et al., 1975; Beach, 1976; Flower and Hayes, 1977; Perl, 1979; Pianko, 1979).

COMPONENTS OF THE WRITING PROCESS

If writing is to be conceived of as a process, what elements and/or behaviors constitute the process? Is it possible to identify specific "stages" in the composing act? If so, do these stages occur in a specific order? Several authorities have addressed themselves to these questions. Some believe that Rohman's (1965) schema of prewriting, writing, and rewriting captures the broad parameters of the process adequately, while others have proposed minor modifications of this three-stage model. Graves (1974), for example, uses the terms prewriting, composing, and postwriting. Applebee (1979) and Krashen (1980) prefer prewriting, writing, and editing. King (1978) thinks the process is best described as prewriting, articulation, and postwriting. Murray (1978) uses terms similar to those employed by Buxton (1958) when he suggests the labels prevision, vision, and revision. Britton (1978) thinks that preparation, incubation, and articulation are the most useful terms.

Still others discard or ignore the three-stage model. Nold (1979a) postulates that writing can be adequately described as a two-stage process--composing and revising. In a later paper, however, Nold (1979b) redefines these terms and expands the model to include three recursive activities--planning, transcribing, and reviewing. Draper (1979) proposes a somewhat similar series of behaviors--prewriting, formulation, transcribing, reformulation, and editing. This is, by no means, an exhaustive list of stage-models, but serves to indicate the diversity of input as well as the need for a careful definition of terms. A description of several stage models, as well as an evaluation of their implications and limitations, can be found in Humes (1980a).

REVISION

Virtually all of the aforementioned models contain some suggestion of "re-doing" that which has been written. This "re-doing" element is given various labels by stage-model theorists, including such terms as revising, rewriting, postwriting, editing, and reformulating. While authorities agree that an adequate model of the composing process must contain such an element, there is a notable lack of agreement as to how that element should be defined and described.

Murray (1978), for example, defines revision as ". . . what the writer does after a draft is completed to understand and communicate what has begun to appear on the page" (p. 87). The key phrase here is "after a draft is completed." This appears to equate revision with rewriting, an equation that some authorities, as we shall see, would dispute. Murray does, however, draw an interesting distinction between

what he calls "internal" revision and "external" revision. For Murray, internal revision is ". . . everything writers do to discover and develop what they have to say, beginning with the reading of a completed first draft" (p. 91). External revision, on the other hand, involves preparing the text for an audience. "It is editing and proofreading and much more" (p. 91).

Nold (1980a) seems to have both internal and external elements in mind in her definition of revision:

> Revising . . . is not just correcting the lexicographic and syntactic infelicities of written prose . . . It also includes (1) changing the meaning of the text in response to a realization that the original intended meaning is somehow faulty or false or weak . . . , (2) adding or substituting meaning to clarify the originally intended meaning or to follow more closely the intended form or genre of the text . . . , (3) making grammatical sentences more readable by deleting, reordering and restating . . . , as well as (4) correcting errors of diction, transcription and syntax that nearly obscure intended meaning or that are otherwise unacceptable in the grapholect (pp. 105-106).

Perhaps Emig (1971) comes closest to providing an operational definition of revision. She prefers to use "reformulation" as an umbrella term for three types of textual change: correcting, revising, and rewriting. For Emig,

> . . . correcting is a small, and usually trivial, affair that consists of eliminating discrete 'mechanical errors' and infelicities . . . Revising is a larger task involving the reformulation of larger segments of discourse and in more major and organic ways--a shift of point of view toward the material in a piece; . . . Rewriting is the largest of

> the three, often involving total reformulation of a piece in all its aspects; or the scrapping of a given piece, and the writing of a fresh one (p. 43).

It should be apparent that all three of these authorities have given serious thought to the nature of textual revision, and have provided insights that will prove valuable to both researchers and instructors. Unfortunately, such clarity of thought and precise terminology is the exception rather than the rule; particularly among those who are charged with the responsibility of providing instruction in composition. Sommers (1979) examined fifteen composition texts and found the following 23 terms used synonymously with revision (p. 16):

Rewriting	Proofreading	Rechecking	Rewording
Reformulation	Editing	Rethinking	Reconceptualizing
Redrafting	Correcting	Restructuring	Realigning
Recreating	Polishing	Reorganizing	Reassembling
Recasting	Remaking	Remolding	Manuscript Preparation
Reviewing	Rearranging	Redesigning	

Sommers believes that the lack of agreement as to proper labels is indicative of a general misunderstanding of the nature of the revision process. She contends that past instruction in revision (or the lack of it) has been tainted by two popular misconceptions: (1) ". . . revision is the act of cleaning prose of all its linguistic litter" (p. 17); (2) "[revision is] a separate stage that comes after the completion of a first or second draft . . .." (p.11). Sommers points to the following passage as one that reflects the prevailing view, underlining the operational terms that form students' notions of revision as a mechanistic and aversive stage of composing:

> And the (final aspect) of the composing process is revision. Any writer who achieves excellence writes and rewrites. (After he writes), he checks and rechecks the topic of each paragraph and examines and orders the supporting statements. He scrutinizes the structure of each sentence, the choice of every word, grooming and polishing his paper, all the while rechecking for grammatical and mechanical accuracy. He revises and revises (pp. 16-17).

Sommers eschews such narrow and mechanical definitions. She contends that revision is ". . . part of the generative nature of the composing process . . . not a stage, but a process that occurs throughout the writing of a work" (p. 13). Linear stage models are, according to Sommers, inadequate and misleading. She believes it more profitable to think of writing as ". . . a recursive process; a process characterized by significant recurring patterns and the repetition of the same operations during different cycles. (A cycle is not the same thing as a stage since it cannot be defined by a single objective or process.)" (p. 159).

Flower and Hayes (1980) agree with Sommers that the concept of linear stages does little to explain actual writing behavior:

> Stage models, which take the final product as their reference point, are adequate metaphors for distinguishing the large, abstract "stages" of a process that might go on for days or weeks. But they offer an inaccurate, even misleading description of the more intimate, moment-by-moment intellectual process of composing (p. 4).

Murray (1978) catches the flavor of this generative and recursive process in his discussion of how writers move both backwards and forwards during the process of internal revision:

> They move from a revision of the entire piece down to the page, the paragraph, the sentence, the line, the phrase, the word. And then,

> because each word may give off an explosion of meaning, they move out from the word to the phrase, the line, the sentence, the paragraph, the piece. Writers move in close and then move out to visualize the entire piece. Again and again and again (p. 92).

On this most authorities are in agreement: revision is not a simple or singular procedure (e.g., proofreading, rewriting) that must be attended to at a particular point in composing. It is, rather, a complex set of behaviors that occur throughout the writing act.

THE CONTENT OF REVISION

What types of changes do writers make when they alter their compositions? An answer to this question may provide us with some important clues regarding the differences between "good" writers and "poor" writers, and may assist us in identifying significant developmental characteristics among those who are learning to write.

Hildick (1965) examined the revisions made by famous authors in the preparation of their manuscripts and asserted that, physically, there are only three kinds of alterations: substitutions, deletions, and insertions. The physical alterations are governed by the author's intent, and can thus occur within the context of any one of five broad categories: (1) Tidying-up changes; (2) Power changes; (3) Structural alterations; (4) Ideologically determined changes, and (5) A ragbag of types (pp. 10-19). Della-Piana (1978) summarized Hildick's categories as follows (pp. 125-126):

1. Tidying-up changes: punctuation, grammar, awkward constructions, redundancies, cliches, suppressing jingles, unintentional puns, double entendres that disrupt mood of passage, improvement of rhymes or readjustment of meter, loosening where writing is too fluent for a character, removal or insertion of punctuation as intentional violation of usage to create special effects . . . ,

insertion of repetition to give incantation effect, and removal of a too graceful image.

2. Power changes: greater accuracy of expression, greater clarity, or a balance between the two; better force of argument; deeper impression on reader; the right word . . . ; successful adjustment of sound to sense . . . ; sharpening an image . . . ; readjustment of timing . . . ; readjustment of point of view . . . .

3. Structural alterations: major stylistic changes that make necessary many minor changes.

4. Ideologically determined changes: changes made by an author living, for instance, under a political or religious dictatorship where the author is concerned about the social or personal consequences of his or her writing or where the author actually has change of views . . . .

5. The ragbag of types: changes dictated by fashion (tightening or loosening of punctuation); changes to avoid what looks like too loud or frequent an echo or imitation of another writer; changes to avoid libel action; changes for purely mechanical reasons . . . ; changes to adjust to the taste of the writer's reading public; or changes to curb one's own idiosyncrasies, to diminish the risk of self-parody, or to avoid the old and familiar.

While many such changes are the concern only of professional writers or those writing in a particular mode (e.g., poetry), they provide a useful backdrop against which to view the revisions made by less proficient writers, and the developmental nature of revision processes.

Sommers (1979) compared the revisions made by seven experienced adult writers with those made by eight freshmen at Boston University. The experienced writers made almost six times as many revisions as the freshmen. The freshmen saw revision as essentially a "rewording activity" and expressed an overriding concern for vocabulary usage. The adults, on the other hand, viewed revision as a process of structuring and shaping their message. The students made 71% of their changes at the word and phrase levels, and only 23% of their changes at the sentence level. The adults

made only 31% of their changes at the word and phrase levels, but 54% at the sentence level (see Figure 1).

Stallard (1974) found similar differences between the revision operations of 15 high school seniors who scored high on a standardized writing test and a randomly selected group of 15 of their lower-scoring classmates. Students in both groups wrote a brief essay on a recent news event of their choice. The "good" writers made 184 changes in their essays, averaging 12.24 revisions per paper, while the comparison group made only 64 changes, or 4.26 per paper. Both groups made more single-word changes than any other kind, with the "good" writers making 109 word changes and the others making 35. Perhaps more significant, however, is that the "good" writers made 42 multiple-word changes, while the control group made only four.

The results of Stallard's study seem to indicate that "good" high school senior writers revise much like Sommer's college freshmen. Their predominant concern is word choice. They do, however, show a developmental advancement over less proficient writers in their attention to multiple-word revision.

What prevents the less-proficient writer from revising beyond the word level? Perl (1979) cast some light on this subject with her study of the composing processes of five unskilled writers at a community college in New York City. Noting that less than 11% of their revisions pertained to matters of content, she postulated that, for these students, attention to detail interferes with the effective communication of a message. "Editing intrudes so often and to such a degree that it breaks down the rhythms generated by thinking and writing. . . . As soon as

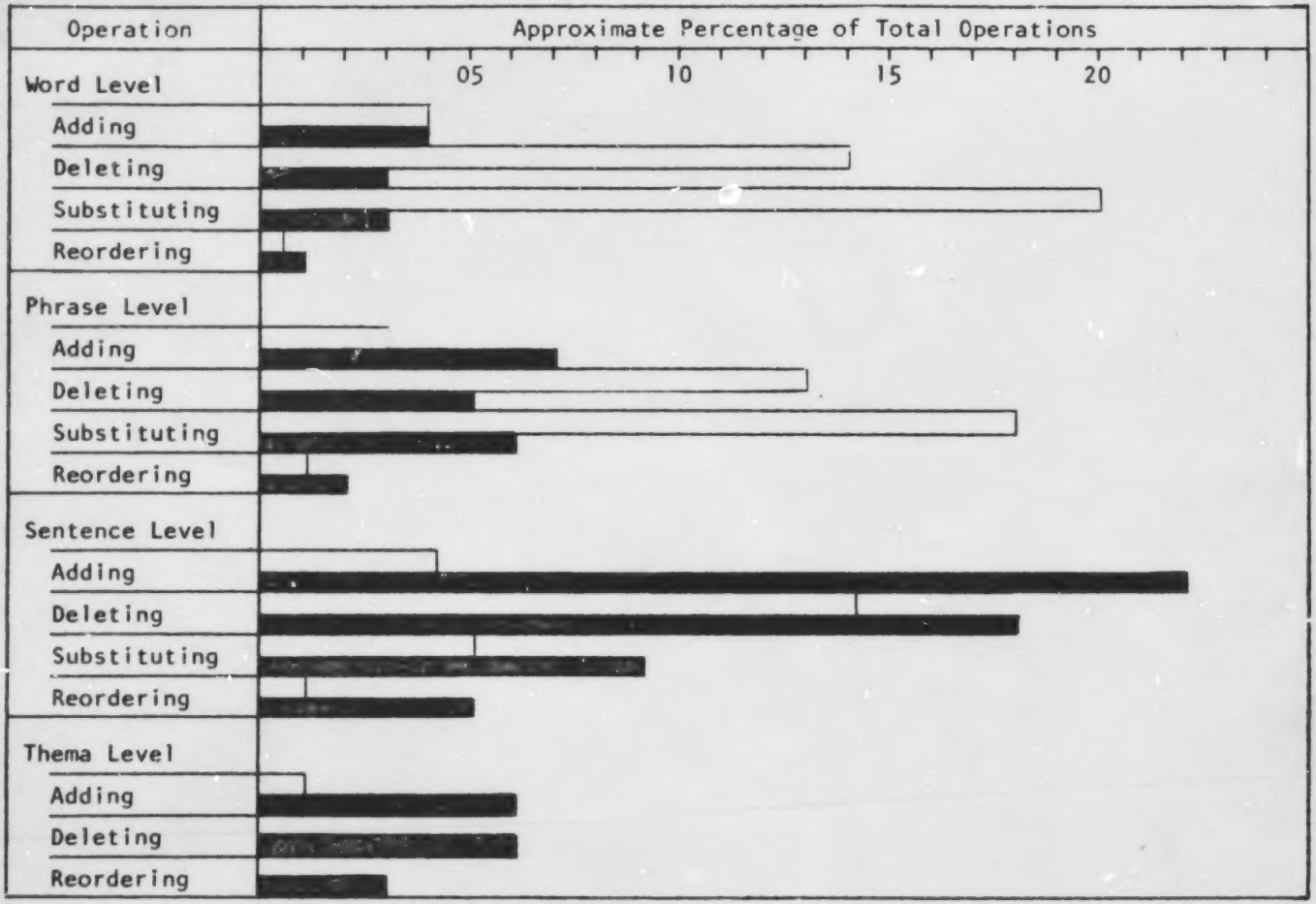

FIGURE 1

RELATIVE EMPHASIS OF REVISION OPERATIONS
OF STUDENT AND EXPERIENCED ADULT WRITERS*

Students
Adults

*Derived from individual tables in Sommers (1979).

a few words are written on the paper, detection and correction of errors replaces writing and revising" (p. 333).

The studies discussed thus far have been case studies involving a small number of participants and have dealt exclusively with the composing processes of older adolescents and young adults. A much larger study, and one that invites some interesting comparisons, is an examination of revisions of a national sample of nine, thirteen, and seventeen-year-old students (National Assessment of Educational Progress, 1977). In this study, approximately 2,500 students at each of these levels were given an initial writing assignment (to be written in pencil), and were then allowed additional time to make any desired changes in pen. They were permitted to make changes in the first draft and/or rewrite the first draft completely. Most students attempted some type of revision (60.2% of the 9-year olds; 78.1% of the 13-year olds, and 68.0% of the 17-year olds) (see Table 1).

The results of this study must be interpreted in the light of certain limitations and qualifications. For example, nine-year olds and thirteen-year olds were given the same assignment. The students were given six facts about the moon and were then asked to write a science report, adding any other information about the moon that they might wish to include. Students at both levels were given fifteen minutes to write the report and another thirteen minutes to revise. In reporting their findings from this study, the National Assessment of Educational Progress (NAEP, 1977, p. 12) offered the following comparisons between the nine and thirteen-year-olds:

Table 1

PERCENTAGES OF STUDENTS MAKING REVISIONS

	9-yr. olds	13-yr. olds	17-yr. olds*
COSMETIC (e.g., appearance, legibility)	20.6	14.3	8.0
MECHANICAL (e.g., spelling, punctuation)	46.0	62.8	38.0
GRAMMATICAL (e.g., subject-verb agreement)	36.9	47.3	15.0
CONTINUATIONAL (e.g., addition of word or phrase at end of report)	34.0	27.8	18.0
TRANSITIONAL (e.g., addition, deletion or substitution of connectives)	10.3	31.0	11.0
INFORMATIONAL (e.g., addition or deletion of information)	42.3	61.3	58.0
STYLISTIC (e.g., substitution of word, phrase, or sentence)	43.0	67.5	59.0
ORGANIZATIONAL (e.g., rearrangement of sentences or paragraphs)	11.0	22.7	7.0
HOLISTIC (e.g., radical departure from original report)	6.0	5.3	12.0

*Percentages for 17-year olds interpreted from bar graph.

> In summary, 13-year-olds were more able to organize their reports and to make higher-level revisions than were 9-year olds. More 13-year olds demonstrated an awareness of organizational and transitional needs in their revision than did 9-year olds, although the percentages of such revisions were still small. Proportionally, 13-year olds made twice as many organizational and three times as many transitional changes as did the 9-year-olds. Thirteen-year-olds also included a proportionally greater number of grammatical, informational and stylistic changes than did 9-year olds. On the other hand, the changes made by 9-year olds seemed to reflect a more superficial perception of revision; 9-year-olds included more cosmetic changes than did 13-year-olds, and when they added information, entered it without concern for logical order. In general, 13-year-olds demonstrated a broader range of types of revision than did 9-year-olds.

Nold (1980b) finds it interesting that the 13-year-olds revised more than the 9-year-olds despite the fact that the task was undoubtedly much easier for them. Nold believes "These data suggest a complex developmental realtionship between amount learned and the increasing use of strategies" (p.6). Referring to the fact that thirteen-year-olds showed the most growth in the organizational and transitional categories, Nold states (p. 6):

> We can infer with some confidence that the thirteen-year-olds made far more changes in organization because their planning processes had matured enough to allow them to conceive of the discourse as a whole with large chunks that could be rearranged to meet the needs of logic and of other audience considerations. A similar interpretation could be advanced for the addition of transitonal devices: thirteen-year-olds were learning to mark the contours of their arguments so that their readers could not miss them. This increasing flexibility and concern for the reader is indeed the sign of predictable cognitive and social development.

Taken at face value, the data in Table 1 indicate that 13-year-olds utilize more revision strategies and revise more extensively than 17-year olds. Indeed, they exceed the 17-year-olds in every category except that entailing holistic changes. Again, Nold (1980b) offers a simple explanation for this seeming incongruity--the 17-year-olds were given a simpler assignment. While the younger students were asked to write an expository report, the high school students were asked to write a note to a grocer who had sold a child some rotten peaches. As Nold points out, ". . . the seventeen-year-olds probably revised less because the task was easy enough that they performed well on the first draft" (p.5). Related too, is the fact that informal writing (e.g., note, personal letter) is normally conversational in tone and thus permits the author a great deal of flexibility in vocabulary and usage. Formal writing (e.g., report, essay), on the other hand, requires the writer to abandon spoken-language patterns and adapt an academic or "approved" style.

While these studies seem to point to a general developmental trend from simple to more complex revision operations, it cannot be inferred that children are unable to perform the more advanced operations until they reach a certain age or grade-level. Graves (1979), Calkins (1979), and Sowers (1979) have recently completed a two-year study of children in the first four years of elementary school which indicates that, with proper instruction, young children are quite capable of complex revision and rewriting strategies.

THE EFFECTS OF REVISION

Bamberg (1978), examining those elements of high school composition programs that best prepared students for college English classes, stated that "One variable which has consistently produced significant differences between experimental and control groups is revision" (p. 50). A review of the studies on which she bases this claim (Maize, 1952; Buxton, 1958; McColly and Remstand, 1963) indicate that Bamberg is referring specifically to the rewriting of orginal drafts based on teacher and/or peer evaluation.

Similarly, Beach (1979) found that high school students who rewrote their themes on the basis of teacher evaluations produced better final drafts than those who rewrote on the basis of self-evaluation or no evaluation.

Hansen (1978) conducted an interesting experiment involving two groups of college freshmen. Both groups used the same class materials and recieved the same instruction, including instruction in revision. Revision was taught ". . . as a process of editing and improving the essay's thesis, examples, and paragraph and sentence structure, as well as proofreading for errors in mechanics, grammar, punctuation, and sentence structure" (p. 957). The experimental group wrote four essays and submitted them for teacher evaluation. The papers were marked and graded and returned to the students for revision and rewriting, including appropriate changes in content.

The control group wrote the same four essays, but when the students received their corrected compositions, they were instructed only to ". . . proofread their papers and make correction sheets (out of class with

the aid of a handbook) of errors in punctuation, grammar, sentence structure, and mechanics" (p.957). They were not asked to revise beyond the sentence level, nor to rewrite their essays.

To measure the results of this experiment, Hansen gathered data from impromptu essays written by both groups at the beginning and end of the term. These compositions were scored by four trained evaluators using an eight-category evaluation form. Hansen compared the mean of each group's gains in three categories--proofreading skills, editing skills, and total composition skills. She found no significant differences between the two groups in any of these categories. Both groups, however, made appreciable gains in all three categories from pre-instruction writing to post-instruction writing. Hansen concludes that "The act of revising and rewriting does not in itself result in improved composition skills. . ." (p.956). She does, however, believe that the discussion of revision techniques, carried out in both groups, ". . . may very well be the teaching procedure which improved the students' skills" (p.959).

Hansen's contention that revision without instruction may not result in an improved product is supported by other studies (NAEP, 1977; Perl, 1979). In the National Assessment study, both the first draft and the revised draft produced by nine-year-olds and thirteen-year-olds were given a quality rating from 1 (low) to 4 (high). Commenting on the degree of change between the first and second drafts, the authors concluded that

> For both the 9- and 13-year olds and for reports in all four categories, approximately 85% of those who revised wrote end products that were categorized the same as their first drafts for overall organization. The remainder of the revisions included almost as many declines as improvements in overall organization (NAEP, 1977, p.9).

Perl (1979), in her study of unskilled college writers, found that ". . . despite the students' considered attempts to proofread their work, serious syntactic and stylistic problems remained in their finished drafts" (pp. 331-332).

It is important to note that both the National Assessment's and Perl's findings relate to relatively complex revision skills. The National Assessment report refers to a lack of improvement in "overall organization," while Perl notes the persistence of "syntactic and stylistic problems" after revision. While none of these studies refer to the relative success of attempted revision of less complex matters (e.g., spelling, punctuation), it is likely that students were more successful in performing low-level revision than they were in resolving more difficult problems.

INSTRUCTION IN REVISION

Murray (1978) claims that ". . . rewriting is one of the writing skills least researched, least examined, least understood, and--usually--least taught. The vast majority of students. . . get away with first draft copy" (p. 85).

How well does Murray's charge hold up? Squire and Applebee (1968) conducted a study of 158 high schools with "strong" English departments and found that "Only in about 12 percent of the high schools had students revised their writing completely in response to teacher 'correction'" (p. 122). Hoetker and Brossell (1979) asked 1,129 college freshmen how often they had been required to revise papers in their high school English classes. More than 75% responded that they were seldom or never asked to revise. Of the minority who did revise regularly, only 42% said

that their revisions were re-evaluated or regraded. Similar results were obtained from an informal follow-up survey that elicited reports from 125 school districts. Of approximately 13,000 students, 77% indicated that they were seldom or never asked to revise. Of those who did revise their drafts, 52% of the students in the eighth grade and about 40% of the students of each higher grade level responded that their teachers had "often" or "almost-always" re-evaluated their work (Hoetker and Brossel 1980).

Emig (1971) concluded that the high school seniors in her study did not voluntarily revise school-sponsored writing. Some equated rewriting with punishment; most believed that teachers were more interested in mechanics and grammar than in content. Scardamalia (1977) conducted a study in which eighth graders were asked to write a report and then revise what they had written. She reports that not only were the students astonished and upset by the assignment, but the majority were unable to make any changes as long as they still had their first drafts in front of them. These writers viewed their first drafts as concrete products, not as a means of exploring thought and sketching ideas.

These studies offer solid confirmation of Murray's contention that revision is one of the least taught writing skills. It appears that teachers have a very narrow view of revision--at best equating it with rewriting a corrected first draft, but more often equating it with the correction of mechanical errors. Through their teachers, students learn to conceive of revision as an aversive activity, or as Murray (1976) says, ". . . the price you have to pay if you don't get it right the first time" (p 2).

Graves (1978) believes that writing teachers must learn to respond to early drafts as ". . . not wrong, only unfinished" (p. 639). Following his Ford Foundation study of writing instruction, Graves offered his observations of how revision was handled in schools where "good" writing was the norm (p. 639).

> . . . the teacher's first response was to content, what the child knew or did not know about the subject. Rewriting came first at the point of information, rather than language conventions. Language conventions were dealt with only when the final draft was ready for an audience.

In schools such as those that Graves describes, composition is treated as a process--a means to an end, rather than an end in itself. Writing-process research is still in its infancy, but enough is now known to furnish teachers with useful information--information that can reshape the writing curriculum and thus produce fluent, effective writers.

TOWARD A THEORY OF REVISION

As we have seen, revision is not a single act or process, but a complex set of behaviors that occur throughout the writing act. Is it possible to explain how and when these various behaviors occur?

Nold (1979b) defines revision as ". . . the retranscribing of text already produced after a portion of the already existing text is reviewed and found wanting" (p. 2). She postulates that each writer internalizes a set of criteria for acceptable text. If the existing text does not meet these criteria, the writer will attempt to generate a solution.

According to Nold, writing begins and proceeds within the context of a plan. This plan is defined by four constituent elements or products: (1) intended effect, (2) intended meaning, (3) intended audience, and (4) intended persona of the writer. Revision occurs when the writer, in rereading the text, decides that the written text does not match one of these intentions or does not match the writer's understanding of the conventions of written language (e.g., spelling, grammar). The degree to which a writer revises is determined by the writer's planning process. If the writer hasn't planned for an intended audience, this element will not be considered in the rereading process and will not influence revision. Nold has constructed a simplified model of the composing process that postulates a recursive interaction between three types of behavior: (1) planning, (2) transcribing, and (3) reviewing. She believes that these behaviors may occur in a cyclical pattern until the writer has resolved the various problems encountered through review (see Figure 2).

Flower and Hayes (1980) have developed a cognitive process model of the composing process that subsumes Nold's theory (see Figure 3). Like Nold, they believe that the major processes in writing are best described as planning, translating (Nold uses the term 'transcribing'), and reviewing, and that the composing act is comprised of a number of cyclical behaviors that are directed toward the resolution of a problem.

Basing their model on several years of protocol analysis, Flower and Hayes believe that the three major composing processes are subject to two major influences--the task environment, and the writer's long-term memory. The task environment includes first, the rhetorical

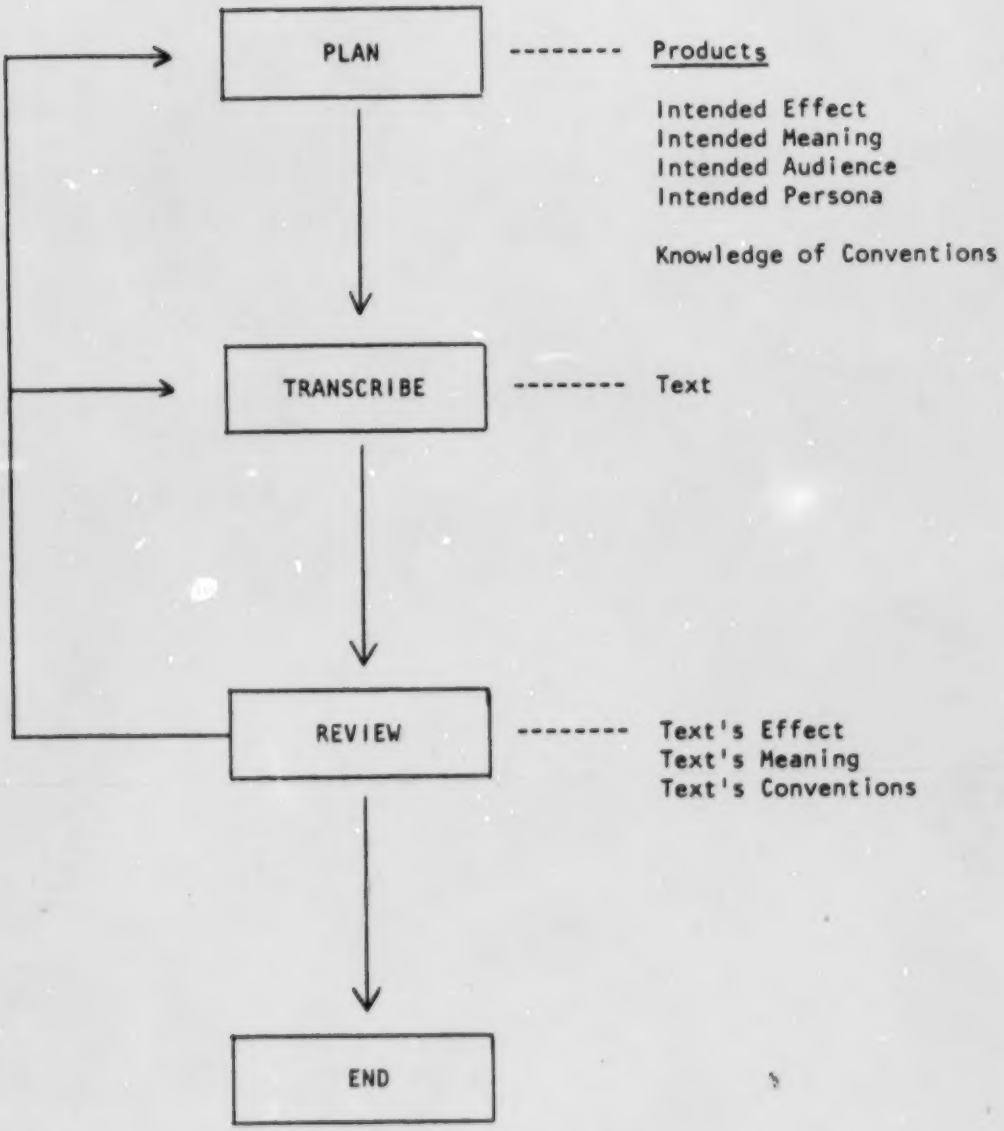

FIGURE 2

NOLD'S SIMPLIFIED MODEL
OF THE WRITING PROCESS*

*Nold, 1979b, p. 10.

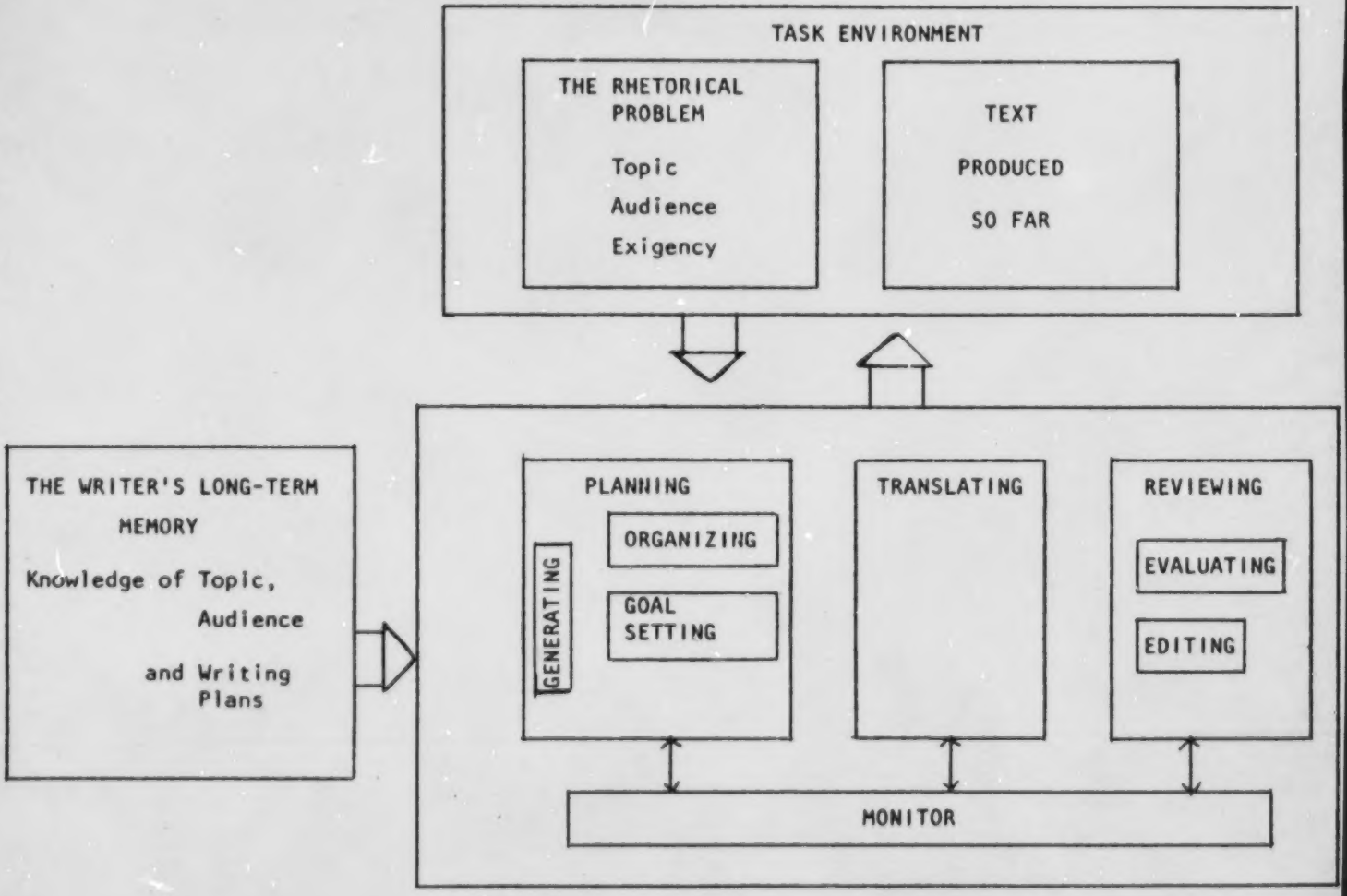

FIGURE 3

FLOWER & HAYES' MODEL OF THE COMPOSING PROCESS*

*Flower & Hayes, 1980, p. 7.

problem, and later the growing text itself. The long-term memory includes the personal and academic knowledge that the writer brings to the composing act.

The first of the major writing processes called into play is planning. This involves generating ideas, organizing data and setting goals. It is not to be implied, however, that these subprocesses occur in a simple, linear fashion. New ideas can be generated throughout the composing process; new goals can be established. These activities in turn require the reorganization of information.

Translation involves the physical act of writing. If the writer is well acquainted with the conventions of written language, this process will not present any particular difficulty. For young and inexperienced writers, however, conscious attention to such demands as spelling and grammar may interfere with further planning.

Reviewing may occur either intentionally or spontaneously. The writer may choose to reread the text or review established plans: processes that often lead to evaluating, editing, or further translating. Unplanned reviewing may occur when the writer encounters a problem in his own plans or discovers a problem in the text. Flower and Hayes postulate that revision occurs within the context of this reviewing process. For them, revision is a cognitive process that governs the performance of certain behaviors.

> . . . we do not need to define 'revision' as a unique stage in composing, but as a thinking process that can occur at any time a writer chooses to evaluate or edit his text or his plans. As an important part of writing, it constantly leads to new planning or a 're-vision' of what one wanted to say (Flower & Hayes, 1980, p. 15).

The authors postulate that all of these basic processes are under the control of a 'monitor': "the writing strategist which determines when the writer moves from one process to the next" (p. 13). The monitor consists of those individual writing habits and styles that the writer has internalized.

Humes (1980b) has designed a model of the composing process that incorporates features of both of the foregoing theories (see Figure 4). She includes planning, translating, and reviewing in her model, and adds a fourth dimension--changing. While Flower and Hayes prefer to think of revision as a "thinking process," Humes' model addresses the behaviorial characteristics of this process; the observable changes that occur when the writer edits the text. Humes points out that hers is an instructional model, designed to account for those behaviors applicable to the acquisition of writing skills.

While none of these theorists claim to have captured all of the complex variables that may enter into any given writing situation, they have provided researchers with several sets of working hypotheses. Their unanimous vision of writing as a recursive and cyclical set of interrelated behaviors seems to be justified by research, observation, and common sense. For purposes of this present paper, they provide us with a view of revision as a set of behaviors that can be called into play at any time during the writing act.

While flow-chart models are extremely useful in providing hypotheses about how revision is related to other parts of the writing process, they provide minimal information about the cognitive dimensions of the revising act. How does the writer know when to revise? Why do some

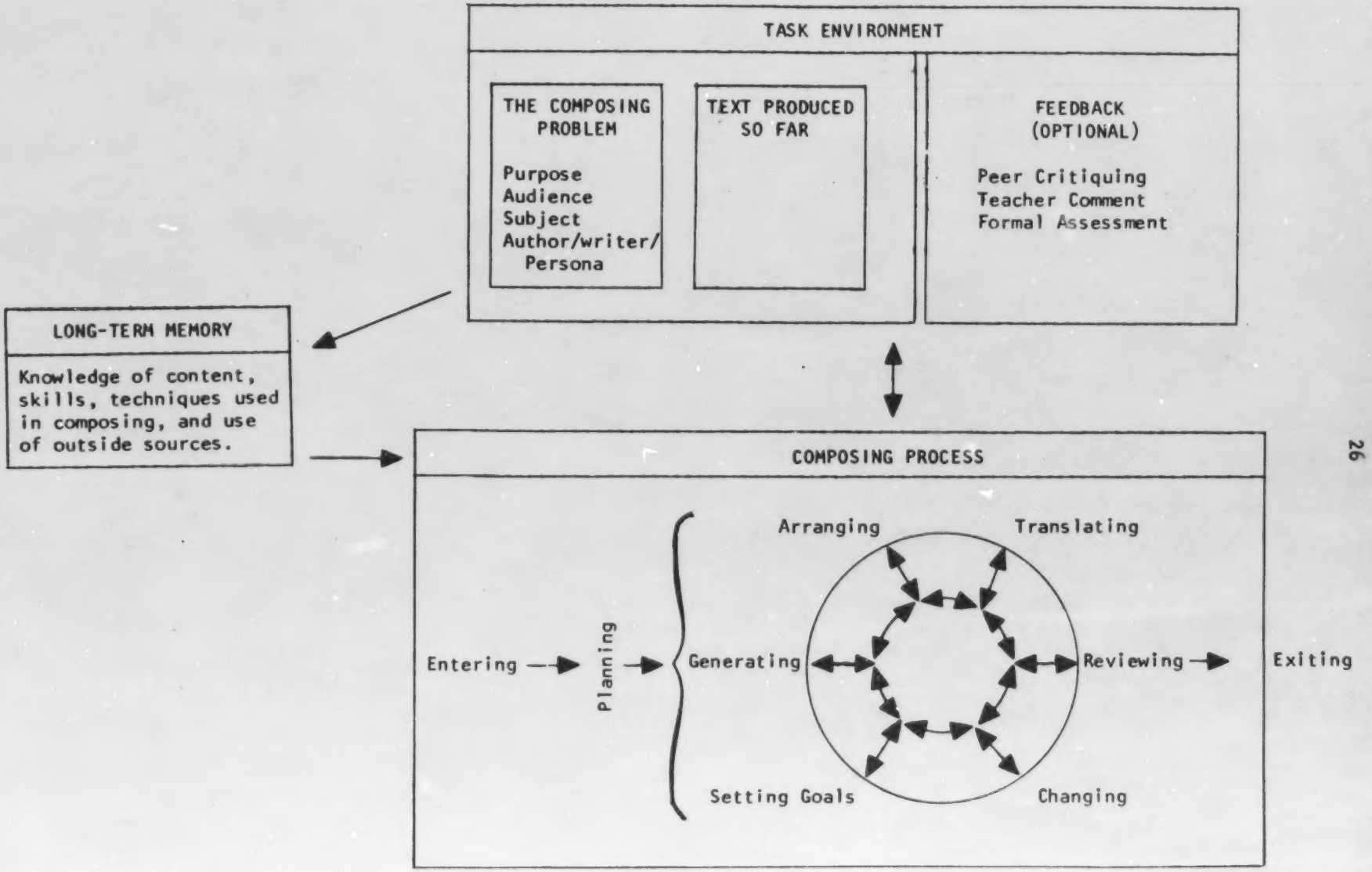

Figure 4
Humes' Model of the Composing Situation

writers revise minor errors immediately while others let them stand uncorrected until a later draft? Both Sommers (1979) and Della-Pina (1978) have addressed these types of questions. Interestingly, both arrived at a similar theory; revision is called into play by dissonance--the lack of congruence between what the text says and what the writer thinks it should say.

Sommers postulates that the writer senses dissonance when he or she notices a specific type of cue. The cue may be lexical (e.g., wrong word), syntactical (e.g., awkward sentence), semantic (e.g., irrelevant idea), or rhetorical (e.g., audience won't understand). Aware of dissonance, the writer must decide whether to revise immediately, delay the revision, or not revise at all. This decision is based on (1) the revision strategies available to the writer, and (2) the amount of dissonance that the writer can tolerate. Mature writers can generally tolerate low levels of dissonance caused by spelling or punctuation errors and thus postpone their correction while the writer attends to higher level concerns such as the sequencing of ideas. The writer continues through the process of sensing and solving problems of dissonance until all dissonance is resolved. In summary, ". . . the resolution of dissonance seems to be determined by the ability to perceive dissonance, by the availability of strategies to resolve it, and by the writer's desire to produce the product . . ." (Sommers, 1979, p. 163).

Della-Piana (1978), while specifically addressing the revision of poetry, provides insights that are applicable to the revision of any written product (see Figure 5). For Della-Piana, the author's preconceptions concerning style and intentions guide the preliminary

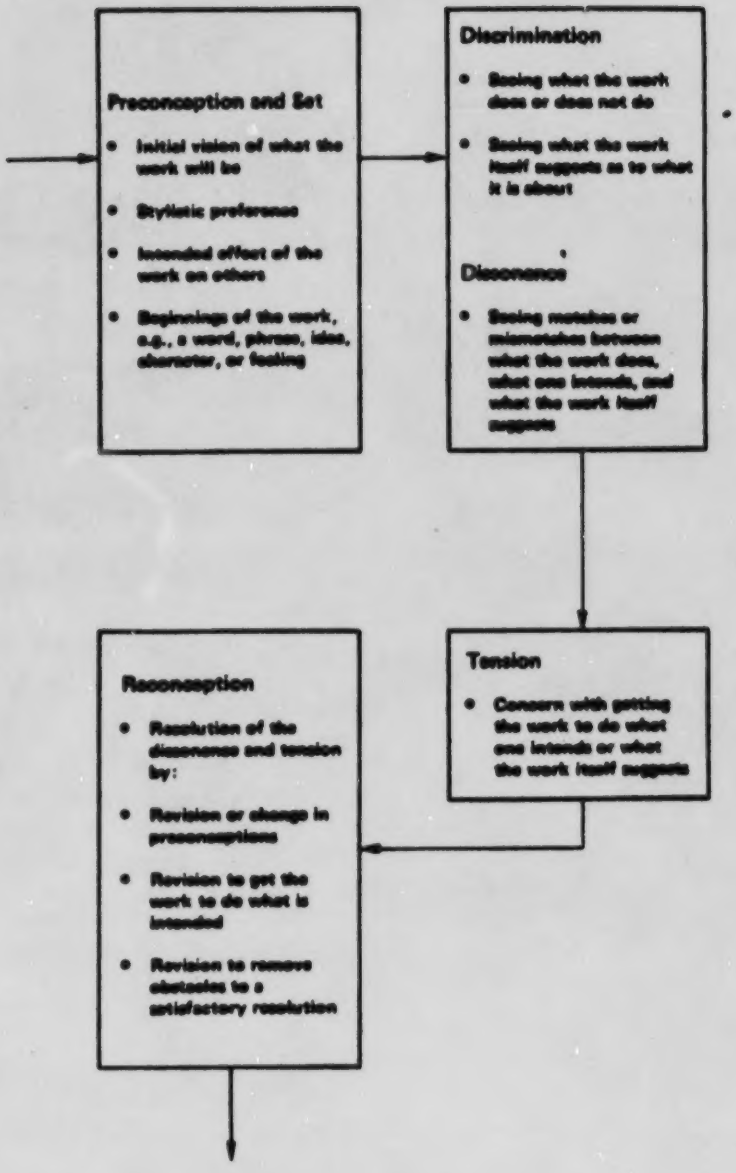
Preconception and Set
• Initial vision of what the work will be
• Stylistic preference
• Intended effect of the work on others
• Beginnings of the work, e.g., a word, phrase, idea, character, or feeling
Discrimination
• Seeing what the work does or does not do
• Seeing what the work itself suggests as to what it is about
Dissonance
• Seeing mistakes or mismatches between what the work does, what one intends, and what the work itself suggests
Tension
• Concern with getting the work to do what one intends or what the work itself suggests
Reconception
• Resolution of the dissonance and tension by:
• Revision or change in preconceptions
• Revision to get the work to do what is intended
• Revision to remove obstacles to a satisfactory resolution

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FIGURE 5

DELLA-PIANA'S MODEL OF WRITING-AS-REVISION*

*Della-Piana, 1978, P. 107.

transcription. These preconceptions and the already written text provide the criteria against which the author makes discriminations concerning effectiveness. If the writer perceives dissonance, varying degrees of tension may follow. This tension may, in turn, be resolved by reconceptualizing the problem and revising the text.

NEW DIRECTIONS

As a logical outgrowth of the fledgling discipline of writing-process research, the serious study of revision is just beginning. To date, most studies have been of a descriptive nature calling attention to the fact that "revision" is an umbrella term, encompassing a number of different behaviors, and that, far from being a "stage" in the writing process, revision occurs at many different times and places in writing. Future research will be able to capitalize on these findings by focusing on specific types of revision and examining their usefulness at various points in the growth of a written product.

The case-study approach has been useful in outlining the parameters of the writing process and, accordingly, the revising behaviors of specific types of writers. While all such research is valuable and welcome, it should be noted that most such studies have involved either high school seniors or college students. It would be useful to compare these results with those from other segments of the population.

Research on revision has serious implications for the teaching of composition. Young writers need to learn that revision is a normal and expected part of writing. They need to learn that revision is more than just the correcting of minor errors--that content is every bit as important as spelling. They also need to know when to delay

their revisions--to keep the words and the ideas flowing--to see the first draft as an experimental draft.

Recommendations such as these, though based on the results of substantiative research, stand in marked opposition to traditional school practice. If the benefits of such research are to be realized by those that matter--the students--it is imperative that educators be made aware of research on revision and other aspects of the writing process and their implications for an improved and effective curriculum.

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